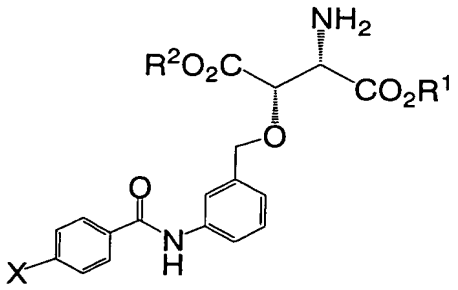
CLAIMS

1. A 3-[3-(benzoylamido)benzyloxy]aspartic acid having a radioactive substituent on the benzoyl group which is represented by the following formula (1), or an ester or salt thereof:

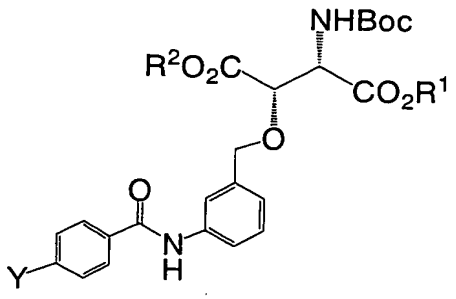


(1)

wherein X represents a substituent containing a radioactive atom(s) which is selected from a straight or branched lower aliphatic alkyl group, a hydroxyl group, a straight or branched lower aliphatic alkoxy group, an amino group, a straight or branched lower aliphatic acylamido group, a halogen atom and a straight or branched lower aliphatic haloalkyl group; and R^1 and R^2 each represents a hydrogen atom, a straight or branched lower aliphatic alkyl group or an acetoxymethyl group.

2. A compound as claimed in claim 1 wherein X is ^{125}I.

3. A precursor compound of a compound as claimed in claim 1 represented by the following formula (2):



(2)

wherein R^1 and R^2 each represents a hydrogen atom, a straight or branched lower aliphatic alkyl group or an acetoxymethyl group; Y represents a leaving group to undergo a substitution reaction which is selected from an organometallic group, a halogen atom, a diazo group, a diazonium group, a trialkylammonium group and a nitro group; and Boc represents a t-butoxycarbonyl group.

4. A precursor compound as claimed in claim 3 wherein Y is $-Sn(n\text{-}Bu)_3$.

5. A method for producing a compound as claimed in claim 1 which comprises subjecting a compound of the formula (2) as claimed in claim 3 to an exchange reaction with a radioactive atom and then removing the protecting group to give a compound of the formula (2).

6. A method as claimed in claim 5 which comprises subjecting a compound as claimed in claim 4 to an oxidative tin-iodine exchange reaction with $Na^{125}I$ in the presence of an oxidizing agent and acetic acid to thereby give a compound as claimed in claim 2.

7. A radiolabeled inhibitor of glutamate transporter activity comprising a compound as claimed in claim 1.

8. A radioactive ligand to a glutamate transporter comprising a compound as claimed in claim 1.

9. A method for examining distribution and/or expression of glutamate transporter and/or glutamate uptake level in a biological sample which comprises:

a) contacting the biological sample with a compound as claimed in claim 1, an inhibitor as claimed in claim 7 or a

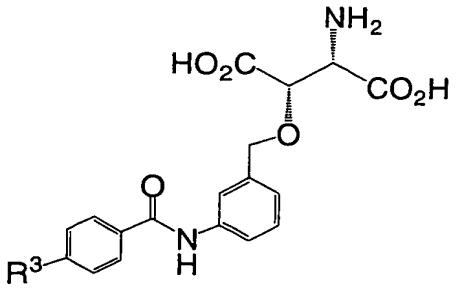
ligand as claimed in claim 8;

b) detecting the presence or absence of the compound as claimed in claim 1, the inhibitor as claimed in claim 7 or the ligand as claimed in claim 8 having bound specifically to the biological sample with the use of the radioactivity as an indicator; and

c) in the case where the specific binding is observed in the above step b), estimating that the glutamate transporter is distributed or expressed in the biological sample or that the part of the body from which the biological sample was obtained participates in glutamate uptake.

10. A compound as claimed in claim 1 wherein, in the formula (1), X is a tritium-containing aliphatic alkyl group such as tritium-containing ethyl group ($X=C_2H_3T_2$), and each of R^1 and R^2 is a hydrogen atom.

11. A precursor compound of a compound of the formula (1) as claimed in claim 10 which is represented by the following formula (3):



(3)

wherein R^3 represents a straight or branched lower unsaturated aliphatic alkenyl group.

12. A precursor compound as claimed in claim 11 wherein R^3 is a vinyl group, a propenyl group, an allyl group or a butenyl

group.

13. A method for producing a compound of the formula (1) as claimed in claim 10 which comprises reacting a precursor compound of the formula (3) with tritium gas in the presence of a palladium catalyst.

14. A method as claimed in claim 13 wherein, in the precursor compound of the formula (3), R^3 is a vinyl group, a propenyl group, an allyl group or a butenyl group.